

Product Specification Sheet

OLSP5525L-C(D)20

RoHS Compliant 2.5Gbps 1550nm 20KM Reach SFP Optical Transceiver



Product Features

- Multi-rate operation, optimized at 2.5Gb/s
- 1550nm DFB laser and PIN photo detector for 20km transmission
- Compliant with SFP MSA and SFF-8472 with duplex LC receptacle
- Digital Diagnostic Monitor Interface
- Very low EMI and excellent ESD protection
- +3.3V single power supply
- RoHS compliant
- Case operating temperature
 - Commercial: 0°C to +70°C
 - Extended: -10°C to +80°C
 - Industrial: -40°C to +85°C

Applications

- SDH STM-16 and SONET OC-48 system
- 2X Fiber Channel
- Switch to Switch interface
- Switched backplane applications
- Router/Server interface
- Other optical transmission systems

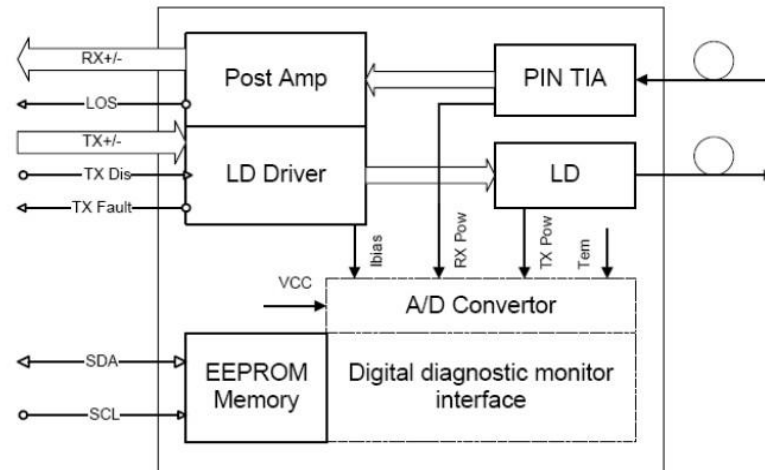
Description

The SFP transceivers are high performance, cost effective modules supporting dual data-rate of 2.5Gbps and 20km transmission distance with SMF.

The transceiver consists of three sections: a DFB laser transmitter, a PIN photodiode integrated with a trans-impedance preamplifier (TIA) and MCU control unit. All modules satisfy class I laser safety requirements.

The transceivers are compatible with SFP Multi-Source Agreement (MSA) and SFF-8472. For further information, please refer to SFP MSA.

Functional Diagram



Ordering information

Product part Number	Data Rate (Mbps)	Media	Wavelength (nm)	Transmission Distance(m)	Temperature Range (Tcase) (°C)	
					Min	Max
OLSP5525L-C(D)20	2500	Single mode fiber	1550	20	0~70	commercial
OLSP5525L-E(D)20	2500	Single mode fiber	1550	20	-10~80	extended
OLSP5525L-I(D)20	2500	Single mode fiber	1550	20	-45~85	industrial

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max	Unit	Notes
Supply Voltage	Vcc	-0.5	3.60	V	
Storage Temperature		-40	85	°C	
Relative Humidity		5	85	%	

Note: Stress in excess of the maximum absolute ratings can cause permanent damage to the module.

General Operating Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate			2.5		Gb/s	
Supply Voltage	V _{cc}	3.1	3.3	3.47	V	
Supply Current	I _{cc}			220	mA	
Operating Case Temperature	T _c	0		70	°C	
		-10		80		
		-45		85		

Electrical Input/Output Characteristics

● Transmitter

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Diff. Input Voltage Swing		300		1800	mV _{pp}	1
Tx Disable Input	H	V _{IH}	2.0	V _{cc} +0.3	V	
	L	V _{IL}	0	0.8		
Tx Fault Output	H	V _{OH}	2.0	V _{cc} +0.3	V	2
	L	V _{OL}	0	0.5		
Input Diff. Impedance	Z _{in}		100		Ω	

● Receiver

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Diff. Output Voltage Swing		400		1000	mV _{pp}	1
Rx LOS Output	H	V _{OH}	2.0	V _{cc} +0.3	V	2
	L	V _{OL}	0	0.8		

Note 1) AC-Coupled CML logic family.

Note 2) Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7k to 10kΩ ohm resistors on the host board. Pull up voltage between 2.0V and V_{cc}+0.3V.

Optical Characteristics

• Transmitter

Parameter	Symbol	Min.	Type	Max.	Unit	Notes
Ave. Output Power (Enable)	Po	-6		1	dBm	1
Side mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	8.5			dB	1
Wavelength Range	λ_c		1550		nm	
Spectral Width (RMS)	$\Delta\lambda$			1	nm	
Output Optical Eye	ITU-T G.957 Compliant					

• Receiver

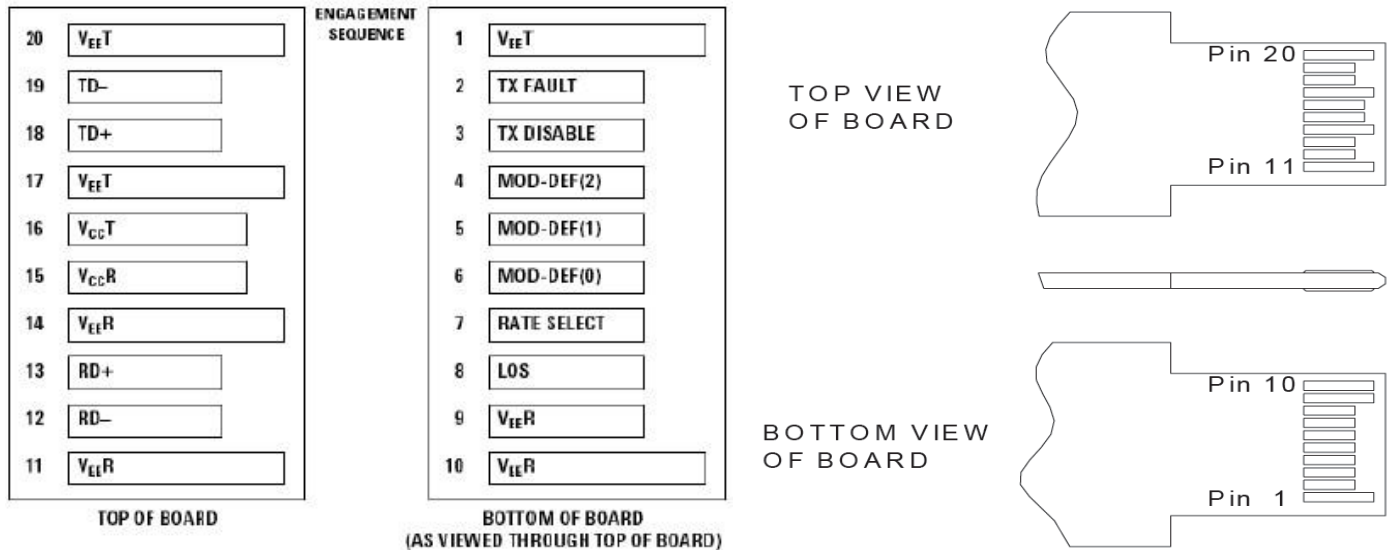
Parameter	Symbol	Min.	Type	Max.	Unit	Notes
Operating Wavelength		1270		1610	nm	
Sensitivity	Pimin			-18	dBm	3
Min. Overload	Pimax	-3			dBm	3
LOS Assert	Pa	-30			dBm	
LOS De-assert	Pd			-19	dBm	
LOS Hysteresis	Pd-Pa	0.5		6	dB	

Note 1) Measured at 2488 Mb/s with PRBS $2^{23} - 1$ NRZ test pattern.

Note 2) Meet the specified maximum output jitter requirements if the specified maximum input jitter is present.

Note 3) Measured at 2488 Mb/s with PRBS $2^{23} - 1$ NRZ test pattern for BER < 1×10^{-10}

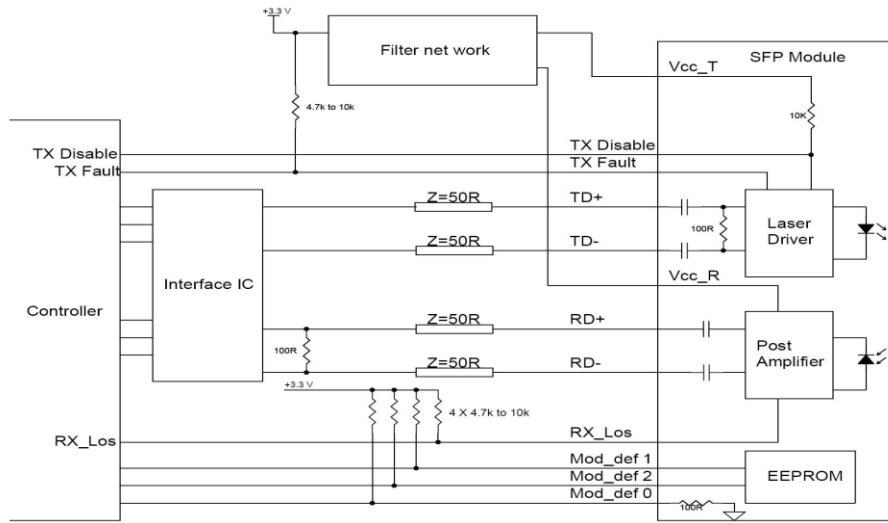
Pin Definitions and Functions



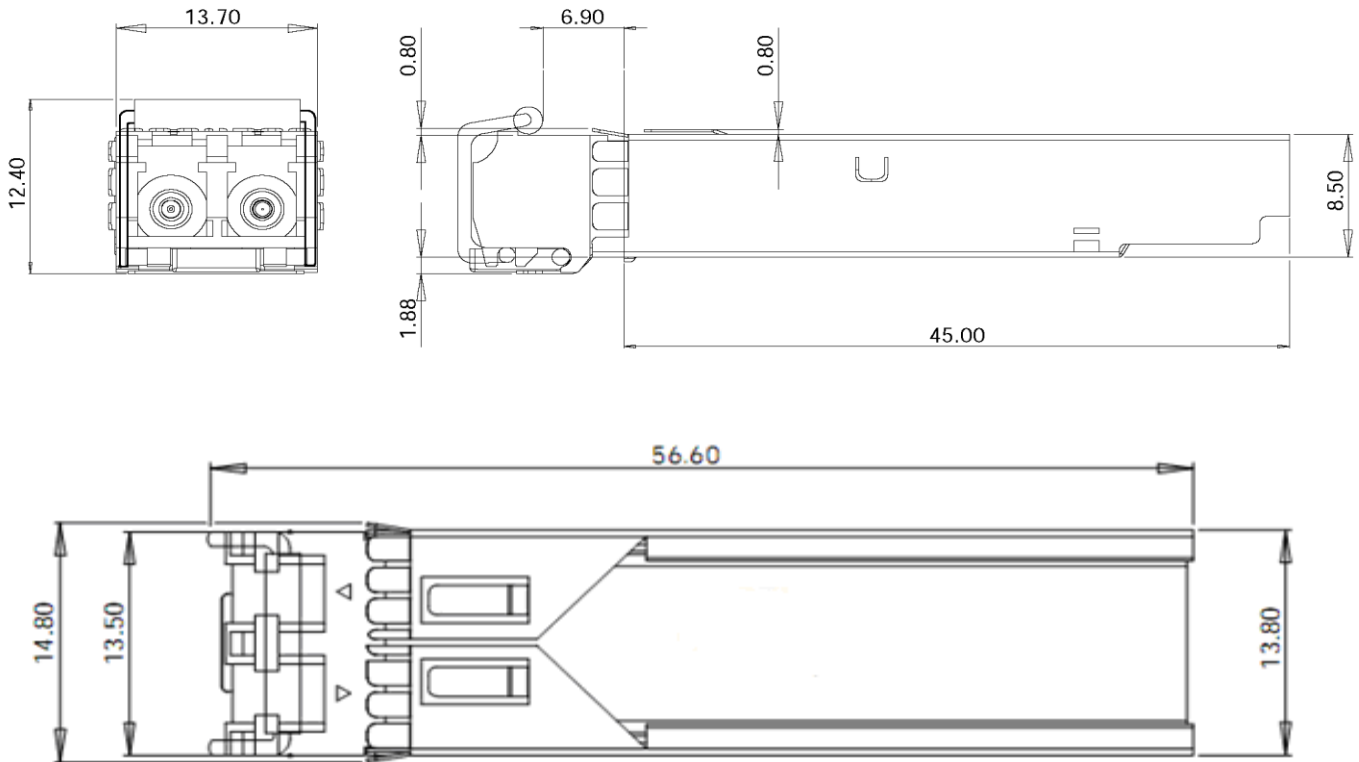
PIN #	Name	Function	Notes
1	V _{EE} T	Tx ground	
2	Tx Fault	Tx fault indication, Open Collector Output, active "H"	Note 1
3	Tx Disable	LVTTL Input, internal pull-up, Tx disabled on "H"	Note 2
4	MOD-DEF2	2 wire serial interface data input/output (SDA)	Note 3
5	MOD-DEF1	2 wire serial interface clock input (SCL)	Note 3
6	MOD-DEF0	Model present indication	Note 3
7	Rate select	No connection	
8	LOS	Rx loss of signal, Open Collector Output, active "H"	Note 4
9	V _{EE} R	Rx ground	
10	V _{EE} R	Rx ground	
11	V _{EE} R	Rx ground	
12	RD-	Inverse received data out	Note 5
13	RD+	Received data out	Note 5
14	V _{EE} R	Rx ground	
15	V _{CC} R	Rx power supply	
16	V _{CC} T	Tx power supply	
17	V _{EE} T	Tx ground	
18	TD+	Transmit data in	Note 6
19	TD-	Inverse transmit data in	Note 6
20	V _{EE} T	Tx ground	

Note 1) When high, this output indicates a laser fault of some kind. Low indicates normal operation. And

Typical Interface Circuit



Package Dimensions



Ordering Information & Related Products

OLSP5525L-CN20	Dual Fiber SFP, 2.5Gbps, 1550nm, 20KM, without DDM
OLSP5525L-CD20	Dual Fiber SFP, 2.5Gbps, 1550nm, 20KM, with DDM